

# Dealing with laughter and ridicule in adolescence: relations with bullying and emotional responses

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**Abstract** We investigated the fear of being laughed at (gelotophobia), the joy in being laughed at (gelotophilia), and the joy in laughing at others (katagelasticism) in adolescent students (N = 324, 13–15 years). Gelotophobia was associated primarily with the victim and katagelasticism with the bully-role (self- and peer reports). Gelotophobia correlated with laughing at oneself if experiencing an embarrassing situation. Gelotophilia increased with the propensity to laugh if observing or experiencing embarrassment; katagelasticism increased with laughing if observing something embarrassing in another person. Imagining potentially embarrassing situations was associated with greater feelings of anxiety, shame, sadness, and embarrassment; gelotophilia with joy and cheerfulness. The study breaks the ground for a better understanding on how adolescent students deal with laughter and ridicule.

**Keywords** Bullying · Gelotophobia · Gelotophilia · Katagelasticism · Laughter · Ridicule · Victimization

## 1 Introduction

The past years have seen a growing interest in the study of how people deal with laughter and being laughed at. Aside from a broad range of studies on teasing, its causes, and consequences (Storch et al. 2004; Strawser et al. 2005; Edwards et al. 2010; Ruch et al. 2010), there is research on three different dispositions towards ridicule and being laughed at (Ruch and Proyer 2008a, 2009a); namely, *gelotophobia* (gelos = greek for laughter; the fear of being laughed at), *gelotophilia* (the joy in being

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laughed at), and *katagelasticism* (katagelao = greek for laughing at; the joy in laughing at others). Gelotophobia is an individual differences variable that ranges from no fear to extreme expressions of fear (Ruch and Proyer 2008b). Those highly fearful of being laughed at have difficulties in understanding laughter and laughter-related cues. They misinterpret laughter by others negatively and react with an almost paranoid sensitivity and high vigilance to their laughter (Proyer and Ruch 2010; Ruch and Proyer 2009b).

From case-observations, it has been concluded that gelotophobes have not learnt to enjoy the positive sides of humor and laughter but rather feel being ridiculed when hearing others laugh (see Titze 2009). This has been verified in experimental settings using acoustically presented laughs (of different categories) without a social context (Ruch et al. 2009) and also in studies using social scenarios depicting laughter in situations that are prototypical for playful teasing and ridicule (Platt 2008). Gelotophobia shares characteristics with social phobia, primarily the tendency to protect oneself from derision by controlling situations by withdrawal and internalizing (Platt et al. 2012). A study using measures for the *fear of negative evaluation*, *social anxiety*, and *gelotophobia* revealed three distinct factors that could be clearly assigned to the three concepts (Carretero-Dios et al. 2010; Weiss et al. 2012). High scorers in gelotophobia fear laughter without social context (Ruch et al. 2009), which means that they do not fear social situations in general but relate laughter by others to themselves without obvious reasons. Furthermore, responses given in case studies suggest that gelotophobes also are able to confront perceived agents of laughter personally, which would be uncommon in social phobics (Platt et al. 2012).

The standard measure for gelotophobia is the GELOPH<15> (Ruch and Proyer 2008b) for which empirically derived cut-off points for *slight*, *pronounced* or *marked*, and *extreme* expressions of the fear exist. Gelotophobia seems to vary from culture to culture; for example Ruch and Proyer (2008b) found 11.65 % of Germans exceeded the first cut-off score; a similar score has been reported for England (13 %; Platt et al. 2009) but lower scores were found in Switzerland (about 4–7 %; Samson et al. 2011) and Denmark (about 2 %; Führ et al. 2009).

Ruch and Proyer (2009b) described two further strategies for dealing with laughter and ridicule. Those high in *gelotophilia* (i.e., joy in being laughed at) actively seek and establish situations in which they can make others laugh. They do not do this for putting themselves down but enjoy making others laugh—even at the own expense. They are not ashamed or embarrassed because of mishaps or misfortunes that happened to them. Contrary, they enjoy sharing these incidents with others to make them laugh, like, for example, some comedians do or “class-clowns” that joke about themselves. In recent studies, gelotophilia has been linked to histrionic self-presentation styles (Renner and Heydasch 2010), greater levels of life satisfaction (Weibel and Proyer 2012), or extraversion (Proyer and Ruch 2010; Ruch and Proyer 2009a). *Katagelasticism* is defined as the joy in laughing at others. Those high in katagelasticism actively seek and establish situations in which they can laugh at others. They do not feel bad when doing so but rather think that being laughed at is part of the daily life—and those who do not like being laughed at just should fight back. They do not feel remorse when laughing at others (see Proyer et al. 2010). Ruch and Proyer (2009a) argue that there is a rude and almost antisocial component to extreme expressions of katagelasticism.

Proyer et al. (2012) report positive relations between the joy of laughing at others and psychopathic personality traits and other studies found associations with the liking of aggressive forms of humor (Samson and Meyer 2010). It seems obvious that these three dispositions can have an impact on the daily life of adolescents—be it in schools or when cultivating social relations. Since humor and laughter are important aspects of various forms of communication, a better understanding of how young people perceive them can help to better understand their experiential world.

Ruch and Proyer (2009b) developed a questionnaire for the assessment of these three dispositions (the PhoPhiKat-45 incorporating the GELOPH<15>) that has been used widely in research ever since its publication. It is important to note that the vast majority of the reviewed literature presents research conducted among adults and that knowledge about these dispositions in children and adolescents is rather limited.

## 2 Dispositions towards ridicule and being laughed at in non-adult samples

Even though the indications are that older adults remembered experiencing gelotophobia in an age below twenty (Platt et al. 2010), neither gelotophobia, gelotophilia, nor katagelasticism have been studied outside of adult populations except for three studies: Proyer et al. (2012) developed a 30-item children's version of the PhoPhiKat-45 (Ruch and Proyer 2009b) and administered it to close to 400 six to nine year olds. The scale demonstrated satisfactory psychometric properties. Gelotophobia was associated with experiences of having been a victim of bullying, and katagelasticism was related with more frequent experiences of having been a bully. Neither of these is surprising considering the connection of the use of teasing as a form of bullying (Espelage et al. 2008; Kokkinos and Kipritsi 2012). This has been found in self-reports of the children but also in teacher ratings. Gelotophilia existed independently from clear assignments to any of these roles. Proyer and Neukom (2013) studied familial aggregations of gelotophobia, gelotophilia, and katagelasticism. In contrast to what has been reported by parents and their adult children (Proyer et al. 2012), the dispositions existed widely independently from each other in the parents and their seven to eight year old children.

Führ (2010) tested more than 1,300 Danish 11–16 year olds with the Danish GELOPH<15> (Führ et al. 2009). His findings on the psychometrics suggested that the questionnaire worked well in this age group (i.e., comparable with the adult version). Greater fear of being laughed at was positively associated with self-reported experiences of having been bullied. This study as well as the Proyer et al. (2012) study indicated also that, based on the cut-off scores derived for adults (Ruch and Proyer 2008b), the fear of being laughed at was more prevalent in the children/adolescent samples than in adult samples from the respective countries. Caution is needed, however, since these cut-off scores have not been validated for non-adults. Hence, these findings need to be interpreted conservatively. Nevertheless, they can be seen as an indication that the topic of laughing and laughing at was relevant to the children. The study of the way adolescents deal with being laughed at and ridiculed can have practical consequences in many fields such as pedagogy or counseling psychology. For example, the knowledge about individual differences in reactions towards laughter and

ridicule can help teachers further support their pupils (e.g., when observing classroom interactions), which makes it especially pertinent considering the relation of being a bully victim and lower academic achievement scores (Glew et al. 2005). There is also evidence that early experiences of violence have an impact on academic achievement in later age (Bibou-Nakou et al. 2012; Huang and Mossige 2012). The question arises on whether those being particularly fearful of being laughed at are especially prone to such experiences and whether this may have an impact on their school and social life (see Edwards et al. 2010; Ruch et al. 2010). In any case, we argue that there are possible implications of laughter and ridicule on behavior and performance in a school setting. Therefore, prevention programs against bullying can benefit from considering typical reactions in laughter-related situations (see also Ahmed and Braithwaite 2004; Roland et al. 2010). In counseling settings, transitions (e.g., at an educational level but also in developmental steps) are sometimes difficult to manage. Considering typical emotional response patterns (e.g., high shame) and typical patterns in reaction to laughter and ridicule can help to increase the counselors' understanding of the situation of the adolescent.

The present study extends Führ's (2010) study in two important aspects: (1) it is the first one to test gelotophobia, gelotophilia, and katagelasticism in a sample of adolescent students; and (2) it provides data on self- and other-ratings on bullying and victimization. This allows a fuller examination on how adolescents deal with ridicule and being laughed at. Like Führ, we decided to use the adult version of the standard measure (the PhoPhiKat-45; Ruch and Proyer 2009b) to test its applicability in the targeted age group. This allows deriving information on the psychometric properties of the instrument and testing content-related hypotheses derived from studies with adults.

We expected that findings with children (Proyer et al. 2012), adults (Platt et al. 2009), and with adolescents (Führ 2010) on a relation between greater levels of the fear of being laughed at and experiences of having been bullied to be replicated. As in Proyer et al. (2012), katagelasticism was expected to be associated with greater propensity towards being a bully—or being involved in bullying activities (e.g., supporting/helping the bully). Each of the participants in this study completed a self-report instrument for assessing his or her inclination to different roles in bullying type situations (Salmivalli et al. 1996). Additionally, they nominated classmates that show specific types of behavior, i.e., associating names (codes) of classmates with specific types of behavior (e.g., “starts bullying” or “gets bullied” and the adolescents list all classmates, who show this type of behavior). Hence, self- and other-ratings for each role were available and can be related to the way the adolescent students deal with ridicule and being laughed at. This provided a fuller picture of the relations—beyond self-reports.

Regarding emotional experiences, there is compelling evidence from questionnaire and scenario-based studies that gelotophobes are shame-prone; additionally, higher inclinations to fear and low joy have been reported (Platt 2008; Platt and Ruch 2009; Platt et al. 2010; Proyer et al. 2010; also see Rawlings and Tham 2010). However, there are no data on these relations with adolescents. It was expected that in an imagined situation in which something embarrassing, yet comparatively harmless (e.g., a slip

of the tongue, or spilling ketchup on ones shirt) happens, the experience of shame, fear and low joy will be associated with greater fear of being laughed at. Based on the descriptions given in [Ruch and Proyer \(2009b\)](#), it is expected that gelotophilia will be related with higher levels of joy and low fear and shame. Those high in gelotophilia are expected to enjoy such potentially embarrassing situations as they enable them to make others laugh at them. Additionally, this should not be accompanied by feelings of anxiety. In [Proyer et al. \(2010\)](#) katagelasticism was not associated strongly with any of the self-conscious emotions described by [Tangney \(1995\)](#). Furthermore, relations with callousness have been described in a recent study investigating psychopathic personality traits ([Proyer et al. 2012](#)). Overall, it was expected that the joy in laughing at others exists widely independently from emotional reactions in these imagined situations. It can be concluded that based on theoretical reasoning (see [Ruch and Proyer 2009b](#); [Titze 2009](#)) and the findings by [Führ \(2010\)](#) and [Proyer et al. \(2012\)](#), we expected that relations to be similar to what has been reported for adults in this study.

### 3 Aims of the present study

This study reports findings for the first usage of the PhoPhiKat-45 in a sample of adolescent students. We were interested in its psychometric properties in this sample but also in data on the validity. Related to this is the question whether findings for adult samples can be replicated in this age group as well. Overall, the present study has four main aims. Firstly, it was tested whether the PhoPhiKat-45 ([Ruch and Proyer 2009b](#)) can be used in a sample of adolescent students. Secondly, relations of three dispositions towards ridicule and being laughed at with different roles in self-ratings and ratings by knowledgeable others (classmates) in bullying type of situations were examined. Thirdly, reactions (laughter-related behaviors and perceived emotions) in imagined potentially embarrassing situations were examined. All analyses were conducted for the full sample but also separately for different age groups and for boys and girls.

## 4 Methods

### 4.1 Sample

The sample consisted of  $N = 324$  adolescent students between 13 and 15 years ( $M = 14.1$ ,  $SD = 0.8$ ). Of these, 165 were boys and 159 were girls. All attended one of nine different public schools in the greater Zurich area; all were comparable in socio-economical status and background of the families.

### 4.2 Instruments

The *PhoPhiKat-45* ([Ruch and Proyer 2009b](#)) is the standard instrument for the assessment of *gelotophobia* (e.g., “When others laugh in my presence I get suspicious”), *gelotophilia* (e.g., “When I am with other people, I enjoy making jokes at my own

expense to make them laugh”), and *katagelasticism* (e.g., “It is easier for me to laugh at others than to make fun of myself”). Each scale consists of 15 items in a 4-point answer format (1 = *strongly disagree* to 4 = *strongly agree*). This is the first usage of the scale with adolescents. For adults, high internal consistencies (all alphas  $\geq .84$ ) and test-retest correlations (all  $\geq .77$  and  $\geq .73$  for a 6 and 9 months interval, respectively) have been reported (Ruch and Proyer 2009b). The scale has been used in several studies earlier providing support for its validity (e.g., Proyer et al. 2012; Renner and Heydasch 2010; Samson and Meyer 2010).

The *Participant Roles Questionnaire* (Salmivalli et al. 1996; German version by Schäfer and Korn 2000, 2004) allows measuring self- and peer-ratings on six different roles in bullying type situations; i.e., *Bully*, *Reinforcer of the bully*, *Assistant of the bully*, *Defender of the victim*, *Outsider*, and *Victim*. We used the 22-item version (Salmivalli et al. 1998). The items deal with behavior in different situations and participants have to indicate (a) whether they themselves display this type of behavior (*never*, *sometimes*, or *often*) and (b) indicate which of their classmates show this behavior (give the code of the person). The nominations from each classmate were averaged across the items for each of the roles and divided by the number of the classmates that participated in the study. These standardized scores were used for the assignment of the pupils to a role; the rationale was that the pupil should score above the mean in a respective scale and should have higher scores in that scale than in any of the other scales (if a threshold of a difference of 0.1 was not met in the difference score, the pupil was not assigned to one of the roles). An exception was the victim role. Here, an assignment was made if 30 % of the classmates indicated that s/he was a victim (for details on the scoring procedure see Salmivalli et al. 1998). Schäfer and Korn (2004) reported that in their sample from Germany were 9.6 % victims and 9.6 % bullies, 26.0 % outsiders, 20.2 % defenders, 8.7 % reinforcers, and 12.5 % assistants to the bully (13.5 % could not be assigned) in their sample of 11–14-year olds ( $n = 104$ ). Reliabilities (Cronbach alpha) of the self-ratings yielded a mean of .73 and were between .55 (outsider) and .79 (bully) in the present sample.

A set of four pictures depicting situations that bear a potential for being laughed at have been set together for this study. The four pictures display: (a) a person taking a photograph in a museum and while kneeling down dropping a vase with his bottom; (b) a person slipping on a snowy street; (c) a person spraying mustard on his shirt while preparing a hot dog; and (d) a person giving a talk and a speech bubble contains a slip of the tongue. The pictures were selected upon a decision made by two experts familiar with research on the three dispositions towards ridicule and being laughed at. The rationale for their selection was that they should be ambiguous in the sense of leaving it open whether the person on the picture laughs at the own mishap or not and whether the situations are potentially embarrassing. Participants had to answer two questions for each of the pictures: “Imagine you observe this situation. Would you laugh?” and “Imagine, this would have happened to yourself. Would you laugh about yourself?” Answers were given in a Yes/No-format. Additionally, they rated for each of the pictures what types of feelings they imagine having if being in the respective situations. On a 9-point scale (1 = *not at all* to 9 = *very strong*) they indicated whether they would experience anger, anxiety, cheerfulness, contempt, disgust, embarrassment,

joy, sadness, and shame. Answers were averaged across the four pictures and all analyses were conducted for this total score.

### 4.3 Procedure

Based on the experiences of [Führ \(2010\)](#) with the GELOPH<15>, which is part of the PhoPhiKat-45, it was decided to use the adult version of the PhoPhiKat-45 ([Ruch and Proyer 2009b](#)) in this study. Schools and teachers were approached via pamphlets but also via personal contacts. After permission was granted by teachers and school administrators, to conduct the study, the teachers distributed information letters directed at the parents in their classes. The letter contained basic information about the study. The parents were asked permission for their children to participate and to sign a consent form. The children completed all questionnaires in a group setting during regular school time. The whole testing took about 90 minutes including instructions and a break. The pupils were instructed to ask questions at any time they needed and that they could stop their participation at any time, if they wanted to. Only a few number of children asked questions during the test sessions. Typically, they wanted further explanations for single words or items. For the other-ratings in the PRQ, each pupil was assigned a special code that was visible to all other children in the classroom. They marked their personal questionnaire with this code and provided the other-ratings using these codes. This procedure was explained to the pupils in detail and they were told that this has been set up to grant them full anonymity. There were no individual feedbacks but teachers received a general summary of the findings of the study for discussion with the pupils after completion of the study. Beyond this there was no compensation to school officials or to the students themselves for participating in the study.

## 5 Results

### 5.1 Using the PhoPhiKat-45 in a sample of adolescent students

The strategy for analyzing the data follows the procedure, which was employed in earlier studies with this instrument ([Proyer et al. 2012](#); [Ruch and Proyer 2009b](#)). A principal component analysis was computed with the 45 items. Twelve factors exceeded unity; the first six eigenvalues were 7.07, 4.25, 2.62, 2.10, 1.74, and 1.46. The Scree-test would allow for the extraction of three or four factors and the authors favored a more parsimonious solution with three factors. The extracted factors explained 31.96 % of the variance and they were rotated to the Oblimin-criterion. The factor solution and the items were inspected based on the following criteria: (a) *factor loading* ( $\geq .40$  on one factor or a difference of .20 or more between the main factor and the factor with the second highest loading, and loadings  $\leq .30$  on the other factors); (b) *corrected item total correlation* (all  $\geq .25$ ); and (c) *internal consistency* (all hboxalpha-coefficients  $\geq .70$ ). The application of these criteria indicated that all gelotophobia items fulfilled the criteria in terms of high loadings on the intended factor (with a range from .30 to .60; median = .54). The differences for the highest loadings on a different factor ranged



between .20 and .69 with a median of .52. If corrected item-total correlations were computed, the coefficients ranged between .24 and .60 (median = .45;  $\alpha$  = .82). Hence, like in Führ (2010), the full 15 gelotophobia-items worked well in a sample of adolescents.

In terms of loadings on the intended factor, the gelotophilia items also were in a satisfactory range; i.e., between .29 and .65 (median = .50). The same was true for the corrected item total correlations for all gelotophilia items; they were between .27 and .56 (median = .40;  $\alpha$  = .81). However, while the median of the differences with the highest secondary loading was .45, the item “*I have talent for being a comedian, cabaret artist or clown*” yielded higher loadings on katagelasticism (.31) than on gelotophilia (.17). This item, however, was the only one, out of the 15-gelotophilia items that could not be clearly assigned to the intended factor. One further item was below the threshold of .20 between the highest and second highest loading. The item “If someone caught me on a camera while something embarrassing or a misfortune happen to me, I would not mind, if s/he send the tape to a television show that broadcast such videos” yielded a difference with the second highest loading of only .15 (.31 on gelotophilia and .16 on katagelasticism). Thus, these two items violated one of the criteria set up earlier.

Finally, there was one katagelasticism item (“It has happened that I have lost friends, because I overdid ridiculing them over of something embarrassing or a misfortune that happened to them”) with higher loadings on a different factor (gelotophobia; = .38) than on the intended one (= .17); a further item had an absolute difference in the size of loading < .20 (i.e., “When related to making jokes or funny remarks about other people I rather follow the motto ‘An eye for an eye, a tooth for a tooth’ than ‘If someone strikes you on the right cheek, offer him the other also’”; = .31 on katagelasticism and = .15 on gelotophilia). The median of the difference in the loadings in all items was .51 and the median for the corrected item-total correlations in katagelasticism was .45 ( $\alpha$  = .81). Overall, this indicated that four out of the 45 items of the PhoPhiKat-45 had different meanings in the sample of adolescents than what is usually found in adult samples. Additionally, the item “I believe that I make involuntarily a funny impression on others” (gelotophobia) was excluded from further analyses despite fulfilling the criteria (e.g., factor loading .40 on gelotophobia). It was anticipated that this item might have been difficult to understand to some of the adolescents, who misread it as a gelotophilia-item (the difference with the second highest loading was .22).

If the principal component analysis was repeated without these five items, the first six eigenvalues were 6.60, 4.26, 2.53, 1.84, 1.36, and 1.34. The Scree plot suggested the extraction of three factors (explained variance = 33.46%) and these were rotated to the Oblimin-criterion. Loadings on the gelotophobia factor ranged between .34 and .69 (median = .55), they were between .41 and .68 (median = .50) for gelotophilia, and between .37 and .71 (median = .61) for katagelasticism. The absolute differences with the second highest loadings yielded a median of .52, .46, and .61 for gelotophobia (.29 to .70), gelotophilia (.24 to .68), and katagelasticism (.37 to .71), respectively.

We tested the factorial structure further by inspecting the model fit for a 1- to 5-factor solution with Mplus (Version 5; Muthén and Muthén 2007). A one-factor solution would indicate a general factor for dealing with being laughed at and ridiculed. A



two-factor solution might indicate a bipolar dimension for fearing and enjoying to be laughed at and katagelasticism as a separate factor. The three-factor solution would be the one expected from theoretical reasoning and empirical findings with the adult version (Ruch and Proyer 2009b). The four- and five-factor solution would speak for a splitting up of either one (or more) of the three scales. We used the WLSMV estimator to analyze the polychoric correlations (Hancock and Mueller 2006; Ruch et al. 2010). The evaluation of the models was mainly based on the standard root mean square residual and root mean square error of approximation (SRMR and RMSEA; Hu and Bentler 1998). Usually, values equal or lower .08 can be interpreted as a good fit for both indicators. Additionally, the  $p$ -values of the  $\chi^2$ -scores (Hair et al. 2006) were also inspected but were of lower relevance since they are not independent from the sample size. In fact, all model tests yielded significant  $p$ -values. Hence, this criterion was not further considered.

Tests for the one-factor (RMSEA = .121, SRMR = .128) and the two-factor model (RMSEA = .090, SRMR = .094) did not fit the criteria. The proposed three-factor model indicated satisfactory model fit (RMSEA = .072, SRMR = .079). Also model tests for a four- (RMSEA = .066, SRMR = .072) and five-factor solution (RMSEA = .063, SRMR = .066) indicated good fit. However, the more parsimonious three-factor model, which was also consistent with theoretical expectations derived from studies with adult samples, was preferred for further analyses (cf. Bollen 1989).

## 5.2 Scale statistics

The alpha-coefficient for gelotophobia was .81 (CITCs were between .25 and .60, median = .44), it was .82 for gelotophilia (.31–.59, median = .45), and .83 (.30–.64, median = .47) for katagelasticism. As in adults, the intercorrelations among the scales were negative between gelotophobia and gelotophilia ( $r(321) = -.15$ ,  $p < .05$ ) and positive between gelotophilia and katagelasticism ( $r = .43$ ,  $p < .001$ ); gelotophobia and katagelasticism were uncorrelated ( $r = -.13$ ,  $p < .05$ ). The mean scores for the three dispositions were normally distributed (*Skewness* = 0.80, *Kurtosis* = 0.77 for gelotophobia;  $Sk = 0.21$  and  $K = -0.19$  for gelotophilia; and  $Sk = 0.17$  and  $K = -0.19$  for katagelasticism). Boys ( $M = 1.81$ ,  $SD = 0.49$ ) scored lower in gelotophobia than girls ( $M = 1.95$ ,  $SD = 0.48$ ;  $t(321) = -.26$ ,  $p < .01$ ,  $d = 0.29$ ) but they ( $M = 2.41$ ,  $SD = 0.53$ ) were higher in katagelasticism than girls ( $M = 2.12$ ,  $SD = 0.55$ ;  $t(321) = 4.80$ ,  $d = 0.54$ ). There were no gender differences in gelotophilia. An ANOVA with age (13–15 years) as grouping variable and the three scales as dependent variables indicated mean level differences for gelotophobia ( $F[2, 322] = 3.69$ ,  $p < .05$ ) and katagelasticism ( $F[2, 322] = 4.02$ ,  $p < .05$ ); gelotophilia was stable across all three age groups. Subsequently conducted post hoc tests (LSD) revealed that 13 year olds ( $M = 2.01$ ,  $SD = 0.51$ ) had higher gelotophobia scores than the 14 ( $M = 1.83$ ,  $SD = 0.46$ ,  $d = 0.37$ ) and 15 year olds ( $M = 1.85$ ,  $SD = 0.49$ ,  $d = 0.32$ ); but lower katagelasticism scores ( $M = 2.12$ ,  $SD = 0.57$ ) than the 15 year olds ( $M = 2.34$ ,  $SD = 0.55$ ,  $d = 0.39$ ; all other comparisons were *n.s.*). This indicated that age and gender had to be controlled for in the subsequently conducted analyses. Overall, the study suggests that with the excep-

tion of five items, the PhoPhiKat-45 in its standard form was suitable for usage in a sample of adolescent students.

Proyer et al. (2012) and Führ (2010) report higher prevalence rates (two to three times higher) of gelotophobia in their sample of children and adolescents compared to what has been usually found in adult samples in these countries (Führ et al. 2009; Samson et al. 2011). It needs to be highlighted that the cut-off scores indicating slight, pronounced, and extreme expressions were derived for adult samples (Ruch and Proyer 2008b) and can here only be used as a tentative and preliminary comparison and evaluation of the relevance of the fear of being laughed at in Swiss adolescent students. In this sample, 10.8 % could be classified with slight 0.6 % with pronounced, and 1.2 % with extreme expressions; this is about double the number of what has been reported for Swiss adults (Samson et al. 2011).

### 5.3 Relating dispositions towards being laughed at and ridicule and bullying and victimization status

Self-ratings and ratings from knowledgeable others on different roles in bullying-type of situations were derived from the PRQ. Based on the peer-ratings, 13.9 % of the pupils could not be assigned to one of the roles; 11.4 % were classified as bullies, 14.8 % as victims, 17.0 % as outsiders, 12.0 % as assistants, 10.5 % as reinforcers, and 20.4 % as defenders. Self-ratings and peer-ratings for each of the types were correlated with gelotophobia, gelotophilia, and katagelasticism—for the full sample but also separately for 13, 14, and 15 year olds and separately for boys and girls to test for age and gender differences in the relations (see Table 1).

Table 1 shows that for the total score, the self-reported inclination to different roles, gelotophobia was associated with the victim and outsider-status. There was also a positive relation with the victim status in the other-ratings and negative relations with the roles of bully, reinforcer, and assistant to the bully. However, there were differences in the age-specific analyses. Self-ratings were in the same direction across all age groups (with numerically strongest pronunciation in the 13 year olds). Victim status and gelotophobia were numerically most robustly related in the 15 year olds, while negative relations with bullying type of behavior were numerically highest in the 14 year olds. Other-ratings existed independently from the level of gelotophobia in the 13 year olds. Results were similar for boys and girls in the self-reports. Numerically highest coefficients were found for the 13 year olds. In boys, gelotophobia was positively associated with the role of defender in the 13 and 14 but negatively in the 15 year olds (uncorrelated in the sample of the girls). Again, findings were similar in the other-ratings. Negative associations with the bully-role and related roles were numerically more pronounced in the boys than the girls.

In the total sample, self-reported gelotophilia tended to increase with inclinations to being an assistant to the bully. In the other-ratings there were positive relations with the bullying type of behaviors and a negative relation with victim-status (total score). The latter was numerically largest in the 15 year olds. If split by gender, gelotophilia was associated with bullying type of behavior and adjacent roles (i.e., reinforcer, assistant) in some of the age groups (self: 14 year olds;

**Table 1** Gelotophobia, gelotophilia, and katagelasticism and bullying-type of behavior in adolescents in self- and other-ratings for the total sample and split by age and gender

	Self-ratings (T)			Other-ratings (T)			Self-ratings (B)			Self-ratings (G)			Other-ratings (B)			Other-ratings (G)		
	Pho	Phi	Kat	Pho	Phi	Kat	Pho	Phi	Kat	Pho	Phi	Kat	Pho	Phi	Kat	Pho	Phi	Kat
<i>Total</i>																		
Bully	-.09	.10	.38**	-.17**	.17**	.30**	-.11	.03	.34**	.05	.17*	.34**	-.16*	.22**	.30**	-.09	.13	.19*
REIN	-.03	.11	.37**	-.23**	.16**	.33**	-.04	.09	.38**	.07	.11	.28**	-.27**	.18*	.31**	-.07	.15	.19*
ASSI	.01	.17**	.39**	-.22**	.13*	.35**	-.02	.14	.43**	.10	.19*	.30**	-.24**	.13	.34**	-.10	.14	.18*
DEF	.06	.01	-.14*	.05	.00	-.24**	.08	-.12	-.28**	.05	.13	.05	.06	-.06	-.23**	-.05	.06	-.13
OUT	.26**	.00	-.08	.06	-.08	-.25**	.23**	-.05	-.08	.30**	.05	-.08	.04	-.05	-.35**	.06	-.11	-.14
VIC	.20**	-.06	-.01	.17**	-.16**	-.14*	.23**	-.15	-.12	.23**	.03	.04	.20**	-.05	-.22**	.16*	-.14	-.09
<i>13 years</i>																		
Bully	.01	.12	.34**	-.09	.15	.23*	.05	.07	.26	.06	.22	.37*	-.17	.11	.23	.00	.19	.23
REIN	.01	.10	.37**	-.15	.15	.32**	-.05	.13	.35*	.22	.12	.31	-.26	.29	.53**	.03	.10	-.02
ASSI	.11	.27*	.45**	-.11	.12	.30**	.11	.23	.36*	.22	.36*	.47**	-.21	.31	.50**	.11	.05	-.07
DEF	.23	.01	-.11	.18	-.04	-.28*	.41**	-.24	-.38*	.11	.11	.06	.16	-.22	-.27	.11	.00	-.15
OUT	.43**	-.06	-.11	-.04	.02	-.27*	.44**	-.16	-.05	.45**	.00	-.21	-.25	.21	-.28	.10	-.11	-.21
VIC	.29**	-.03	-.03	.10	-.08	-.18	.23	-.17	-.28	.44**	.09	.18	.06	-.12	-.22	.16	-.05	-.15
<i>14 years</i>																		
Bully	-.08	.16	.32**	-.23*	.19*	.29**	-.18	.29*	.31*	.14	.01	.25	-.21	.27*	.31*	-.16	.10	.17
REIN	-.04	.09	.29**	-.33**	.13	.29**	-.05	.22	.38**	.04	-.06	.15	-.36**	.11	.21	-.20	.19	.25*
ASSI	.06	.11	.28**	-.33**	.15	.30**	.00	.32*	.40**	.18	-.10	.13	-.28*	.08	.23	-.30*	.30*	.26*
DEF	.14	-.09	-.10	.12	-.01	-.22*	.23	-.19	-.18	.03	.01	.01	.13	-.21	-.27*	-.01	.13	-.08
OUT	.23*	.00	-.07	.14	-.13	-.21*	.28*	.09	.03	.18	-.11	-.18	.18	-.10	-.32*	.09	-.16	-.11
VIC	.20*	-.07	-.01	.12	-.17	-.06	.26	-.12	-.10	.21	-.02	.04	.12	-.16	-.12	.16	-.19	-.06

**Table 1** continued

	Self-ratings (T)			Other-ratings (T)			Self-ratings (B)			Self-ratings (G)			Other-ratings (B)			Other-ratings (G)		
	Pho	Phi	Kat	Pho	Phi	Kat	Pho	Phi	Kat	Pho	Phi	Kat	Pho	Phi	Kat	Pho	Phi	Kat
<i>15 years</i>																		
Bully	-.14	.01	.48**	-.13	.16	.33**	-.12	-.24	.40**	-.10	.31*	.50**	-.10	.18	.30*	-.16	.10	.23
REIN	-.03	.11	.47**	-.18*	.18*	.35**	-.02	-.07	.42**	.03	.29*	.47**	-.21	.16	.28*	-.06	.22	.36*
ASSI	-.07	.16	.49**	-.16	.10	.38**	-.07	-.06	.50**	-.04	.36*	.43**	-.20	.07	.36**	-.02	.09	.27
DEF	-.07	.09	-.19*	-.10	.06	-.25*	-.23	.03	-.28*	.07	.24	.05	-.09	.26*	-.11	-.21	.01	-.20
OUT	.20*	.02	-.07	.07	-.12	-.35**	.11	-.12	-.17	.36*	.24	.12	.11	-.15	-.47**	-.01	-.05	-.14
VIC	.17	-.07	.01	.26*	-.23*	-.19*	.22	-.17	-.04	.13	.01	-.02	.33**	-.28*	-.33**	.14	-.17	-.05

*N* = 297–302 (self; *n* = 149–152 boys; 145–151 girls); *N* = 323 (observer; *n* = 165 boys, *n* = 158 girls); 13 years: *n* = 70–74 (self; *n* = 32–33 boys; *n* = 39–41 girls), *n* = 78 (observer; *n* = 35 boys, *n* = 43 girls); 14 years: *n* = 118–120 (self; *n* = 56–57 boys, *n* = 61–64 girls), *n* = 127 (observer; *n* = 61 boys, *n* = 66 girls); 15 years: *n* = 108–111 (self; *n* = 62–63 boys; *n* = 46–48 girls), *n* = 118 (observer; *n* = 69 boys, *n* = 49 girls); REIN = Reinforcer; ASSI = Assistant to the bully; DEF = Defender; OUT = Outsider; VIC = Victim; Pho = Gelotophobia; Phi = Gelotophilia; Kat = Katagelasticism; (T) = Total sample; (B) = Boys; (G) = Girls

\*  $p < .05$ ; \*\*  $p < .01$

other-ratings: total sample and 14 year olds). Interestingly, the sign of the correlation coefficient changed for the 14 and 15 year old boys in the self ratings ( $r = .29$  to  $r = -.24$ )—in the 15 year old girls, gelotophilia was robustly positively related with bullying type of behaviors (self-reports); this has not been reflected in the observer ratings.

Finally, katagelasticism was strongly related with inclinations to the role of bully, reinforcer, and assistant to the bully—this was stable across all age groups and for the self- as well as the other-ratings. In the other-ratings there was a negative relation with the role of defender and outsider and in the 15 year olds also with the role of being a victim of bullying. Findings for katagelasticism were comparatively stable in the analyses that were conducted split by age and gender. However, negative associations with being a victim or outsider in bullying-type of situations were numerically more pronounced in the boys than in the girls (other-ratings).

#### 5.4 Ratings on imagined behavior and emotional reactions in laughter-related situations

We averaged answers on the four pictures (depicting persons in potentially embarrassing situations). Six participants indicated that if observing these situations, they would laugh in none of them, 27 in one of the situations, 66 in two, 95 in three, and 127 in all four situations. Thus, more than two thirds indicated that they would laugh in three or four of these situations. In comparison with the previous data, more adolescent students indicated that they would not laugh in any of the situations if this would happen to them (39); 63 would laugh in one, 98 in two, 63 in three, and 60 in all four situations. Hence, slightly more than a third of the participants indicated that they would laugh at themselves in more than two situations. These scores were correlated with the scores for gelotophobia, gelotophilia, and katagelasticism—separately for the three age groups and for boys and girls (see Table 2).

Table 2 shows that there was a stable pattern of greater gelotophobia and lower tendency to laugh at oneself if this situation would happen to oneself. Greater gelotophilia correlated with greater inclination to both, laughing if observing such a situation but also if this situation happens to oneself. Finally, katagelasticism was associated with the tendency to laugh if observing such a situation. Correlation coefficients for boys and girls differed only numerically. This was relatively stable across all age groups—yet there were no associations between gelotophobia and the two questions in the 15 year olds (boys and girls). Laughing if observing such situations was numerically highest related with katagelasticism in the 15 year old girls.

If observing such a situation gelotophobia was associated with feelings of anxiety, embarrassment, shame, sadness, contempt, disgust, and anger. While the general pattern of relations was highly similar between boys and girls, sadness was stronger correlated with gelotophobia in girls than in boys (Steiger 1980). Overall, anger, disgust, shame, and especially sadness had numerically larger relations with gelotophobia in girls than in boys. Gelotophilia increased with feelings of joy and cheerfulness. Katagelasticism existed widely independently from emotional reactions in such imagined situations. The relations were widely stable in the age- and gender-

specific analyses—yet were numerically least pronounced in the group of the 15 year old boys.

We conducted three separate stepwise multiple regression analyses to see what emotional reactions predicted gelotophobia, gelotophilia, and katagelasticism (step 1 = age and gender, method = enter; step 2 = emotions, method = stepwise). In the final model (not shown in full detail), gelotophobia ( $R^2 = .19$ ,  $F[4, 299] = 17.08$ ,  $p < .001$ ) was predicted by embarrassment ( $\beta = .24$ ,  $p < .001$ ;  $\Delta R^2 = .12$ ) and anxiety ( $\beta = .24$ ,  $p < .001$ ;  $\Delta R^2 = .05$ ). Gelotophilia ( $R^2 = .09$ ,  $F[4, 299] = 6.96$ ,  $p < .001$ ) was predicted by joy ( $\beta = .26$ ,  $p < .001$ ;  $\Delta R^2 = .06$ ) and sadness ( $\beta = -.12$ ,  $p < .05$ ;  $\Delta R^2 = .02$ ). Katagelasticism was predicted by demographics only ( $R^2 = .09$ ,  $F[2, 299] = 15.32$ ,  $p < .001$ ).

## 6 Discussion

This study provides the first data on three dispositions towards ridicule and being laughed at in adolescent students. Findings indicate that gelotophobia, gelotophilia, and katagelasticism can be well assessed with the standard version of the PhoPhiKat-45, which has only been used in adult populations thus far (Ruch and Proyer 2009b). Four out of the 45 items demonstrated different characteristics than in adult samples (mainly in terms of high double loadings) and these (plus an additional item that was potentially difficult to understand) were excluded from further analysis. These items will be revised in upcoming studies but at the current stage it is suggested not to score them when using the scale with adolescents. This version of the scale demonstrated a robust three-factor solution and high internal consistencies ( $\alpha$ -coefficients were .81, .82, and .83 for gelotophobia, gelotophilia, and katagelasticism, respectively). Unlike in adult samples (cf. Ruch and Proyer 2009b), there were gender differences in gelotophobia (girls > boys). Based on earlier findings with adult samples greater scores for boys in katagelasticism than for girls were expected. The findings on gender differences in gelotophobia cannot be fully explained by the current data and have not been reported in earlier data. Führling (2010) studied gelotophobia in Danish adolescents and did not find a relation of gender with gelotophobia. Thus, the question arises whether the differences found between samples are best accounted for by specifics of the samples used, differences in the culture or language, or by other factors. However, longitudinal data are needed for testing the developmental aspects of the fear of being laughed at.

It has been argued earlier that this line of research has special relevance in relation with maladaptive behavior at school. It was shown that greater expressions in gelotophobia relate to a greater likelihood of having experienced bullying in adults (Platt et al. 2009). Similar findings have been reported for children (Proyer et al. 2012) and adolescents (Führling 2010). This finding has been replicated in the current study. As in Proyer et al. (2012), katagelasticism correlated with bullying type of behavior (but also related types such as being a reinforcer or assistant to the bully). This has been found in self-ratings but also in observer-ratings by classmates. Thus, there seems to be a stable pattern across different age groups. Pending empirical verification, it is proposed that addressing issues related to the role of laughter—ridicule—being laughed at and related areas might have beneficial effects for preventing or dealing with bullying-type

**Table 2** Responses to imagined laughter-related situations

Category	Total			Boys			Girls		
	Pho	Phi	Kat	Pho	Phi	Kat	Pho	Phi	Kat
<i>Total</i>									
<i>Laugh</i>									
Observe	-.10	.21**	.27**	-.12	.17*	.25**	-.06	.24**	.28**
Self	-.18**	.36**	.09	-.19*	.39**	.06	-.22**	.34**	.19*
<i>Reactions</i>									
Anxiety	.34**	-.10	-.11*	.35**	-.10	-.05	.31**	-.10	-.12
Anger	.16**	-.03	.01	.12	-.10	.07	.22**	.03	-.05
Disgust	.19**	-.05	-.01	.15	-.06	-.05	.23**	-.04	.05
Joy	-.04	.25**	.11*	-.07	.24**	.09	.01	.27**	.12
Shame	.29**	-.06	-.07	.19*	-.03	-.03	.35**	-.09	.02
Sadness	.24**	-.09	-.08	.07	-.04	-.07	.41**	-.12	-.08
Cheerfulness	.03	.18**	.03	.02	.18*	-.05	.06	.18*	.09
Contempt	.22**	-.04	-.08	.20*	-.03	-.11	.27**	-.05	-.08
Embarrassment	.34**	-.10	-.10	.37**	-.06	-.12	.28**	-.13	-.02
<i>13 years</i>									
<i>Laugh</i>									
Observe	-.01	.34**	.24*	-.01	.32	.29	-.04	.37*	.24
Self	-.23*	.43**	.09	-.29	.41*	.10	-.25	.46**	.20
<i>Reactions</i>									
Anxiety	.43**	-.13	-.18	.37*	-.10	-.11	.48**	-.18	-.24
Anger	.24*	-.06	.09	.18	-.02	.21	.35*	-.06	-.10
Disgust	.29*	-.04	.07	.36*	-.07	-.01	.25	-.01	.12
Joy	.03	.27*	.12	.12	.17	.06	-.04	.32*	.16
Shame	.44**	-.10	.01	.25	-.05	.08	.59**	-.17	.14
Sadness	.22	-.04	.03	.03	-.04	.07	.39*	-.04	.02
Cheerfulness	.12	.19	-.03	.07	.13	-.19	.17	.21	.12
Contempt	.36**	.00	-.02	.33	-.09	-.08	.41**	.05	.02
Embarrassment	.48**	-.17	-.07	.53**	-.13	-.10	.43**	-.21	-.02
<i>14 years</i>									
<i>Laugh</i>									
Observe	-.13	.08	.20*	-.13	.02	.21	-.08	.13	.15
Self	-.30**	.35**	.08	-.32*	.38**	.06	-.33**	.33**	.14
<i>Reactions</i>									
Anxiety	.35**	-.20*	-.13	.41**	-.16	-.09	.26*	-.25*	-.11
Anger	.17	.01	.02	.19	-.10	.05	.15	.11	.01
Disgust	.18*	-.10	.02	.31*	-.07	.03	.07	-.14	.05
Joy	-.09	.26**	.14	-.16	.28*	.21	-.01	.24	.06
Shame	.40**	-.19*	-.06	.39**	-.28*	-.10	.36**	-.11	.05
Sadness	.31**	-.10	-.03	.31*	-.04	-.01	.35**	-.16	-.08



**Table 2** continued

Category	Total			Boys			Girls		
	Pho	Phi	Kat	Pho	Phi	Kat	Pho	Phi	Kat
Cheerfulness	-.01	.20*	.10	-.01	.30*	.09	.02	.11	.06
Contempt	.18*	-.07	-.05	.33**	-.03	-.03	.08	-.11	-.11
Embarrassment	.30**	-.12	-.09	.32*	-.16	-.18	.22	-.08	.08
<i>15 years</i>									
<i>Laugh</i>									
Observe	-.08	.20*	.32**	-.13	.14	.21	-.01	.28	.48**
Self	-.02	.30**	.05	-.02	.37**	.00	-.05	.25	.23
<i>Reactions</i>									
Anxiety	.29**	.04	-.06	.30*	-.04	.05	.29*	.15	-.07
Anger	.09	-.06	-.04	.00	-.11	.02	.25	.01	-.12
Disgust	.13	.02	-.12	-.18	.01	-.12	.49**	.06	-.03
Joy	.03	.22*	.02	-.05	.21	-.07	.13	.23	.13
Shame	.06	.12	-.10	.01	.24	-.04	.11	.03	-.07
Sadness	.18	-.10	-.22*	-.09	-.04	-.23	.53**	-.15	-.16
Cheerfulness	.05	.15	-.03	.04	.07	-.13	.05	.26	.10
Contempt	.14	-.01	-.14	-.02	.04	-.19	.37*	-.07	-.11
Embarrassment	.30**	-.01	-.14	.32**	.11	-.05	.27	-.12	-.18

*N* = 315–323, *n* = 162–164 (boys), *n* = 155–158 (girls); *n* = 72–77 (13 years; *n* = 32–34 boys, *n* = 40–42); *n* = 124–127 (14 years; *n* = 61 boys; *n* = 63–66 girls); *n* = 115–188 (15 years; *n* = 67–69 boys, 46–49 girls)

\*  $p < .05$ ; \*\*  $p < .01$

incidents at school, or helping children to better understand if it is that they are mis-understanding laughter and feeling bullied, even though the laughter was benevolent. Perhaps further increasing awareness among educators and students themselves on the beneficial but also harmful effects of laughter and ridicule can contribute to a more positive working climate at school.

Gelotophilia existed widely independently from these categories but observers related the joy in being laughed at with rather maladaptive behaviors (bully, reinforcer, assistant) than positive ones. These findings have also been stable across all age groups tested (13, 14, and 15-year olds). As Ducharme and Shecter (2011) explain, teachers are increasingly faced with students who present challenging behavioral issues that require interventions. It could be especially relevant that the dispositions towards ridicule and being laughed at might also be an important focus when designing intervention programs in schools or similar institutions. It seems important for children and adolescents to learn about different types of laughter and learning more about being sensitive on how other people deal with laughter and being laughed at. This can be well integrated into the school setting and, as suggested earlier, can be helpful for enabling a positive climate in the classroom (see also Führ 2010; Proyer et al. 2012).

Using four pictures depicting embarrassing situations in which people might get laughed at confirmed hypotheses on how high scorers in each of the dimensions should

react if imagining observing or experiencing these situations. Gelotophilia and katagelasticism increased with a greater propensity to laugh if observing these situations. Greater gelotophobia was associated with not laughing if such a situation would happen to oneself, while gelotophilia increased with laughing if such a situation would happen to oneself. This confirms basic assumptions and main characteristics of gelotophobia, gelotophilia, and katagelasticism. This can be interpreted as a hint towards the validity of the concepts in adolescents. However, it needs to be acknowledged that real life studies with adolescents are missing; i.e., observational studies in real settings (e.g., in the school, while playing or interacting with peers, etc.). Also the test material can be further refined (e.g., depicting adolescents and using a broad variety of age-relevant situations).

As expected, anxiety and shame dominated the imagined emotional responses with increasing gelotophobia. This reflects well what has been found in adults (Platt 2008; Platt and Ruch 2009; Proyer et al. 2010) and, thus, seems to be relatively stable across different age groups. Platt (2008) and Platt and Ruch (2009) have also pointed towards lower inclinations to joy in the emotional experience of gelotophobes. In a recent study, Platt et al. (2013) compared facial actions in adult gelotophobes and non-gelotophobes when elaborating verbally on different joyful emotions. Facial expressions indicating joy (so-called Duchenne-display; Ekman et al. 1990) were of lower intensity in the gelotophobes but this was strongest in types of enjoyable emotions found to be most related to laughter responses (e.g., *schadenfreude*, relief, amusement, tactile pleasure and wonder) while there were no differences for other enjoyable emotions (contentment, *fiero*, and olfactory and auditory pleasures). Thus, in adults there are behavioral differences (in facial responses) in the way gelotophobes and non-gelotophobes deal with pleasurable emotions. If correlating the gelotophobia scores of the participants in this study with the imagined experience of joy in these (embarrassing) laughter-related situations, this could not be verified among the adolescent students. Overall, this argues for a more in-depth analysis of these relations in children and adolescents as well.

As expected, gelotophilia was associated with the imagined experience of joy and cheerfulness in these situations. Thus, negative emotional experiences did not seem to play an important role in these situations. The expression of katagelasticism existed widely unrelated from emotional experiences in these types of situations. It is a topic for future investigation to test the emotional experience patterns of those high in katagelasticism in more detail. As in Proyer et al. (2010) there does not seem to be a consistent pattern of emotional experiences. Additionally, recent findings on the relation of the three dispositions towards ridicule and being laughed at point towards a positive relation between callousness and katagelasticism (Proyer et al. 2012), which could be seen as a way of emotionally distancing oneself from environmental cues. This would help partially understanding why those high in katagelasticism do not feel wrongdoing in laughing at others.

## 6.1 Limitations

This is the first application of the PhoPhiKat-45 in adolescent students and further data are needed for replicating the properties of the scale in this age group—and a revision of five items is needed. The differentiation between gelotophilia and katagelasticism in this age group seemed to be less clear (based on the double loadings of some items) than in adults. Developmental and learning processes may be relevant in this respect; i.e., learning and understanding the role of laughter and laughing at in daily communication and interaction with others. The set of pictures used for assessing imagined behavioral and emotional responses was selected based on expert judgment. Although the results fit the predictions well and the pictures seem to be useful, a more thorough validation will be needed if this material should be used in further research. Of course, the cultural context needs mentioning. All adolescents were tested in public Swiss schools. Switzerland is a comparatively wealthy country (e.g., in 2010 the median of income before taxes was close to 6,000 Swiss Franks [approximately 6,500 USD]; Federal Statistical Office of Switzerland 2011) and schools are usually well equipped. About 30 % (31.7 % in 2009 according to the Federal Statistical Office of Switzerland) of the adolescents get a school-leaving diploma that qualifies them for studying at a university. Thus, caution is warranted if generalizing the findings to other countries.

## 7 Conclusion

The present study can be seen as a first step into describing emotional responses related to the three dispositions in adolescents but different assessment methods would also be available (e.g., scenario tests, the assessment of facial responses, structured interviews; see e.g., Platt 2008; Platt et al. 2012) and allow for a more thorough investigation of these relations. Finally, the application of cut-off scores that were developed for adults (e.g., by comparing diagnosed gelotophobes [via interviews] and samples of controls) in a sample of adolescent students is problematic and caution in the interpretation of the findings is warranted. Nevertheless, it seems as if the topics of laughter, laughing at, and ridicule are of relevance for adolescents at this age.

It is argued that laughter and ridicule have an impact on behavior (e.g., reactions towards classmates and teachers; see e.g., Führ 2010; Proyer et al. 2012; Weibel and Proyer 2012) and performance in a school setting (see e.g., Edwards et al. 2010) and this has implications for the school context. We argue that specifically targeting topics around laughter and being laughed at can have a positive impact on learning and the class climate. There are children and adolescents, who are overly fearful to be laughed at (Führ 2010; Proyer et al. 2012) and they deserve special attention. Accordingly, katagelasticism seems to be prevalent from a very early age group as well (see Proyer et al. 2012). One might speculate about the role of parents and family members (Proyer et al. 2012; Proyer and Neukom 2013; Proyer et al. 2012; Weibel and Proyer 2012), but it seems evident that school time and the behavior of classmates has an impact on how children and adolescents deal with ridicule and being laughed at. More awareness about laughter's positive but also detrimental effects and potential protective factors

(e.g., Baldry and Farrington 2005) in education could have a positive impact on the development of young children and adolescents.

Overall, the findings suggest that the PhoPhiKat-45 can be well used for studying gelotophobia, gelotophilia, and katagelasticism in adolescents. In future research, the wording of some items will be slightly adapted for an even better fit to the intended age group. Well-established relations between gelotophobia and bullying experiences and katagelasticism and the bully-role have been replicated with adolescents. Expectations for laughter-related and emotion-related reactions in relation with the three dispositions were widely met. Further studies are needed for a better understanding of gelotophobia, gelotophilia, and katagelasticism in this age group.

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